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NOTES ON THE SPECIES OF AGARICUS (PSALLIOTA) OF THE CHAMPLAIN VALLEY.

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EIGHT species of Agaricus have been thus far found in the Champlain Valley. The more abundant of these are *Agaricus arvensis* and *A. silvicola;* others found less often are *A. comtulus*, *A. campester*, *A. diminutivus*, *A. placomyces*, and *A. silvaticus*. *A. Rodmani* seems to be quite local, but when found is often abundant. Four of these species are especially noteworthy by reason of their rarity, or because they are so likely to be confounded with more common or better known species.

AGARICUS RODMANI Pk. Pileus rather thick, firm, at first convex, then nearly or quite plane, with decurved margin, smooth or rarely slightly rimose-squamose on the disk, white or whitish, becoming yellowish or subochraceous on the disk, the flesh white, unchangeable; lamellae close, narrow, rounded behind, free, reaching nearly or quite to the stem, at first white, then pink, or reddish-pink, finally blackish-brown; stem short, subequal, solid, whitish, smooth below the annulus, often furfuraceous or slightly mealy-squamulose above; annulus variable, thick or thin, entire or lacerated, at or below the middle of the stem; spores broadly elliptical or subglobose, generally uninucleate, 5-6 x 4-5 μ. Plant 5-7 cm. high; pileus 5-10 cm. broad; stem 12.5-21 mm. thick.

Agaricus Rodmani is allied to *A. arvensis*, from which it may be most readily distinguished by its short, thick, solid stem, double annulus, and smaller spores. The double annulus, in the mature plant, is separated by a groove into two projecting entire parts. Sometimes the annulus is near the base of the stem and then suggests a volva. *A. arvensis* has a hollow and longer stem. The annulus is also double, but the two portions are in close contact and joined along the surface of contact. The upper part is entire; the lower is radiately divided, being cut into stellate white or yellowish rays. The spores of *A.*

arvensis are elliptical 6-10 x 5-6.5 μ. Those of *A. Rodmani* are usually subglobose.

Agaricus Rodmani has sometimes been regarded as a form of *A. campester* [*A. campestris L.*]. It differs from it, however, in having the flesh of the pileus thicker and firmer, the lamellae narrower and at first whitish, then pink, and the spores subglobose, while those of *A. campester* are elliptical and of nearly the same size as those of *A. arvensis*.

AGARICUS COMTULUS Fr. Pileus somewhat fleshy, plane to convex or obtuse, adpressedly fibrillose-silky, smooth, with thin soft flesh, becoming white; lamellae free, rounded behind, crowded, soft, broader in front, flesh-color then rose, but not fuscous-flesh-color unless mature; stem hollow, when young stuffed with floccules, subattenuated, even, glabrous, white, becoming somewhat yellowish; annulus medial, torn, fugacious, of the same color as stem; spores elliptical, 4.5 x 3.6 μ. Pileus 2.5-3.75 cm. broad; stem 2.5-5 cm. long, 4-6 mm. thick.

Agaricus comtulus has its pileus white, sometimes cream colored toward the disk; the lamellae exceed the pileus and change color with age; the stem has a somewhat enlarged base, and changes color to a light yellow. The only specimens I have seen were found growing in thin grass under shrubbery by Dr. E. A. Burt. This species differs from *A. campester* in having a thinner pileus, shorter stem, and smaller spores 4.5 x 3.6 μ. while those of *A. campester* are 6.5-7.5 x 4.5 μ. The lamellae are more beautiful in color than those of *A. campester*.

AGARICUS DIMINUTIVUS Pk. Pileus thin, fragile, at first convex, then plane or centrally depressed, sometimes slightly umbonate, whitish or alutaceous, faintly spotted with small, thin, silky appressed brownish scales, the disk brownish or reddish-brown; lamellae close, thin, free, ventricose, brownish-pink, becoming brown, blackish-brown or black; stem equal or slightly tapering upwards, stuffed or hollow, smooth, pallid; annulus thin, persistent, white; spores elliptical 5 x 3.5-4 μ. Plant 3.5-5 cm. high, pileus 2.5-3.5 cm. broad, stem 2-4 mm. thick.

Agaricus diminutivus is about the same size as *A. comtulus* and in some respects is perplexing to separate from it. The color seems to differ in the two. *A. comtulus* has a yellowish pileus; that of *A. diminutivus* is of a reddish hue, usually, becoming paler near the margin, but sometimes uniformly tinged with red. The lamellae differ in the two species. Those of *A. comtulus* are flesh-color, then rose, and change to a fuscous flesh-color only when old, while the lamellae of *A. diminutivus* are brown or pinkish brown. The pileus of *A. comtulus* is soft-fleshed and fibrillose-silky. *A. diminutivus* has a fragile

pileus and bears thin reddish-brown scales. The annulus of *A. diminutivus* is thin and persistent, that of *A. comtulus* is torn and often falls off.

AGARICUS PLACOMYCES Pk. Pileus fleshy but rather thin, at first convex or campanulate, then expanded and quite plane, squamulose, whitish, the disk and minute scales brown; lamellae close, free, white, then pinkish, finally blackish-brown; stem smooth, stuffed with a small pith, slightly tapering upward, bulbous, whitish, the bulb stained with yellow and usually giving rise to one or two mycelioid white root-like processes; annulus large, flabby; spores elliptical, 5-6 x 4-4.5 μ. Plant 7.5-12.5 cm. high, pileus 5-10 cm. broad, stem 4-8 mm. thick.

Agaricus placomyces is readily recognized by the numerous brown scales with which the pileus is thickly covered. These are more abundant near the center, forming there a dark brown spot. The pileus, as contrasted with these scales, is of a whitish color, passing sometimes into shades of mouse and ash color. It is quite thin-fleshed, and when young, is bell-shaped as is also the large, thin, flabby annulus; but both become flatter with age. The lamellae are white, passing through the various shades of pink with advancing age, and at length reaching their normal color, brown. The stem is hollow or stuffed and rather long and tapering, bearing near its top the annulus. The plant grows in thin coniferous woods. My collection was made in September from a cedar grove of quite large trees. Many plants were found the first time, but afterwards few new ones grew. There was apparently but one crop.

AGARICUS SILVATICUS is very rare. The only specimens I have seen were collected by Dr. Burt. The pileus is thin, gibbous or umbonate and somewhat variable in color, being whitish, brownish or smoky gray. It is covered by feebly persisting, innate, reddish-brown squamules; but at length it may become free from scales. The even stem is lighter in color than the pileus, and bears the thin membranaceous and sometimes fugacious annulus at about two-thirds the distance from the slightly enlarged base. The stem is stuffed, at least, in young plants, but finally becomes hollow. The lamellae are at first cinnamon-color but become fuscous-purplish. The plant is usually found in woods.

AGARICUS SILVICOLA bears some resemblance to *A. arvensis*, for in our American plant there seems to be a somewhat double or lacerated annulus. It differs from *A. arvensis*, however, by growing in woods, and in having a flattened turnip-like bulb. It is larger than *A.*

campester, has white lamellae in its young stage, while those of *A. campester* are pink. The pileus is also larger and smoother. The best marks by which to recognize it are its peculiar characteristic bulb and its stuffed or hollow, long, tapering stem.

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[As it is not unlikely that readers of Mr. Smith's article on species of *Agaricus* may use it as a guide to make sure of the common edible pasture mushroom (*A. campestris* L.), it may be well to add that of the other species mentioned the following are beyond question edible: *A. arvensis*, *A. silvicola* and *A. Rodmani*. It is important to state, however, that *A. comtulus* has a bad reputation; and further that cases of illness have been reported from eating fungi that closely resemble *A. placomyces*, although the identity of these noxious forms cannot be precisely stated with the information at hand. — ED.]

ADDITIONS TO THE FLORA OF AMHERST, MASSACHUSETTS.

HUBERT LYMAN CLARK.

IT is now nearly twenty-five years since the appearance of the last edition of Professor Tuckerman's Catalogue of Plants growing without cultivation within thirty miles of Amherst College. Since that time a number of plants have become fairly common in Amherst which were then unknown there, most of them having been introduced as "weeds." Since 1890, I have spent four seasons wholly or in part botanizing around Amherst, and the following flowering plants have come under my notice which are not given in Tuckerman's list. The nomenclature used is that of the sixth edition of Gray's Manual.

1. *Coronilla varia*. Quite common in the last few years in several roadside fields about town.

2. *Amorpha fruticosa*. Abundant by the roadside near the "Colonel Clark" place.

3. *Callitriche heterophylla*. Collected in a pool on the east side of Mt. Warner in May, 1899.

4. *Carum carui*. Quite common by the roadsides in Leverett in 1899.

5. *Onopordon acanthium*. Found near the Agricultural College in the summer of 1890.

6. *Hieracium aurantiacum*. Not rare in 1890 in the lawn near the plant-house at the Agricultural College.

7. *Lysimachia nummularia*. Now a common and, in some places, troublesome weed.

8. *Pentstemon pubescens*. Near East Amherst in 1890.